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A
T R E A T I S E
O N
F E V E R S, &c.

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Société Royale de Médecine

NECESSARY TO ALL FAMILIES.

[In Answer to Questions proposed by the ROYAL SOCIETY OF PARIS, on the Cause and most effectual Methods to prevent the Progress of Infectious Disorders.]

A
T R E A T I S E
O N
F E V E R S :

Wherein their CAUSES are exhibited in a
NEW POINT OF VIEW.

By a proper Attention to which, their Contagion (accruing from a Contaminated Air) will be prevented; and a Variety of Cases—as Putrid Sore Throats, Inflammations, Fluxes, Influenzas, Consumptions, as well as LOW NERVOUS FEVERS that terribly affect the Spirits, may be cured with Ease.

Causa sublata tollitur effectus.

LONDON, printed for the AUTHOR,
BY SEAGOOD AND COLLINS, Finch-Lane, Cornhill :
Sold by SCATCHARD & WHITAKER, Ave-Maria-Lane;
J. PRIDGEN, Fleet-Street; and T. AXTELL,
Royal Exchange. 1788.

Price ONE SHILLING.

Entered at Stationers Hall.

С. П. ПЕТРОВ

(It is a very serious question proposed by the Royal Society of Arts on the one hand, and the Royal Academy of Sciences on the other, as to whether or not it is expedient to allow the sale of opium in India.)

THE A. E. B.

REV. 2

What is the name of the person who is the subject of the document?

By a proper attention to which, the

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Those that are acquainted with phisic, will find this essay a Key to Health, the most valuable of all blessings—by their means, and the patronage of the GREAT, it will become of universal benefit.

Such as are inexperienced, must wait for the additional Publication—now preparing for the press—which will enable men of a common share of understanding, to prevent disorders, or to cure almost all such as are not exceedingly complicated——Fevers will then no longer be the terror of mankind.

The bad state of the air, and the very great prevalency of Epidemic disorders at this time, make a speedy publication necessary.

I N T R O.

INTRODUCTION.

SINCE inoculation for the small-pox has so generally prevailed in Britain, the lives of thousands have been saved, and it has occasioned a great increase and multiplication of the inhabitants of this kingdom— But when the cause and cure of Epidemic disorders come to be universally known, the multiplication will be much greater; health will be fixed on a firmer basis; and the lives of the people will be extended to a great length of years. At present, few die meerly of old age, but the greatest part are carried off by these

*these disorders, in some shape or other—either
 by fevers, consumptions, fluxes, palsies, gout,
 rheumatisms, whooping-coughs, disorders of
 the lungs, stomach, liver, kidneys, head, &c.
 —or outwardly by putrid sores, swellings, St.
 Anthony's fire, and a numerous train of ills.
 —And those disorders (called Nervous,
 for want of being understood) that prey upon
 the spirits, and occasion so much horror and
 depression, as even sometimes to produce mad-
 ness and suicide, which generally originate
 from the same source, viz. a contaminated
 air.*

A TREATISE

human species, but the brute creation,

lived very much in the same manner, and in

horses, the horses were so disordered,

that they were very much distressed.

Among the stage-coaches, waggon, &c.

Abundance of horses died of this dis-

temper, called the staggers.

F E V E R S, &c.

The epidemic character of this time,

affected people many different ways.

THE following remarks were chiefly

made about the years 1769 and 1770,

when contagious disorders affected almost

all parts of England: and not only the

human

human species, but the brute creation, suffered very much.—In Holland, the horned cattle were very bad: and in England, the horses were so disordered, that business was very much hindered among the stage-coaches, waggons, &c. Abundance of horses died of that distemper, called THE STAGGERS.

The epidemic disorder of this time, affected people many different ways—according to the parts where it lodged, and according to the constitution or situation of the sufferer.

Numbers

Numbers were carried off in the course of a few days after they were infected, by a putrid fore-throat and fever—having their tongue and mouth covered, and the throat filled up with ulcers.

Others were affected in the head ; and became raging, delirious, or insane. Some in the stomach and bowels ; whence purging, sickness, and great pain. Some with the gout, palsy, rheumatic fever ; attended with violent pains, swellings, or contractions of the limbs. Some were infected in the eyes : and a few, by slow degrees, entirely lost their sight. Some

on the outside of the cheeks and neck with inflammation.

In some it settled on the lungs ; who were more slowly carried off by consumptions.

Some had low nervous fevers ; who lingered under the apprehension of a variety of diseases, in horror and misery, for years after—in the end, falling a prey to the most dreadful anxieties and sufferings, the cause of which they could not explain. Some had violent influenza, colds, and coughs.

The

The putrid fore-throat was particularly fatal to children : for out of families of four or five, commonly three or four died of it. And many children were affected by the whooping-cough.

Several persons were afflicted in the liver and kidneys.

In short, there is scarce any disorder or malady to which the human frame is liable, that this ill state of the air did not produce. Wherever was the seat of the disease, it was generally attended with a high fever. Almost every disorder was

infectious; though some more easily or quickly communicated than others—and when communicated, did not always produce the same disorder. Thus two persons having caught the infection from a third, who had the putrid fore-throat fever—one was seized with the same complaint immediately: the other was infected with what was called St. Anthony's fire.

If the cause of epidemic disorders be still a mystery, after the closest attention, labour, and minutest observation of many thousands of ingenious men in different

ages

ages (or if none have given a satisfactory and public explanation thereof), the method of treating them will still be precarious, and the cure uncertain.

While this is the case, the modes of prescription will be as various as the faces of the prescribers. Every physician will direct a different treatment, and success depend on a number of uncertain experiments.

This uncertainty has produced innumerable volumes on the subject; and the opinions of the authors appear to be as different as they are numerous.

It

It is generally allowed (and I conceive very justly) that these disorders proceed from some invisible noxious matter which exists in the air; and penetrates the skin, or visits the intestines.

What kind of matter it is that produces such dire evils, is certainly worthy of the strictest enquiry: and when the cause is fully explained, it may appear by what means it is communicated from one to another. The result of this intelligence may be the production of the most effectual methods of preventing the progress

gress of such contagion ; and point out the speediest means of curing those that are infected.

Some imagine, that the plague, and all other kinds of epidemic diseases, are produced by sulphureous exhalations from the earth.

If this was the case, the fumes of brimstone, or any acrid poisonous vapours, would increase the disorder—whereas, on the contrary, they are remedies ; and also will prevent houses, and the inhabitants, from being infected.

Another

Another opinion is, that a putrid matter, which contaminates the air, is the cause of the mischief.—

But how a dead matter should be endowed with such active properties, as to penetrate through the skin from the air, forming ulcers in the flesh, and even in the very bones, in direct opposition to the continued efforts of nature (by perspiration), I cannot conceive: but am readily apt to imagine it proceeds from something more powerfully active.

By the help of glasses it hath been fully proved, that the disorder called the
itch,

itch, is produced by numbers of a particular species of insects that infest the skin—Hence it is easy to conceive how this disorder is caught by contact, from one person to another.

These animalcules creep into the joints, and betwixt the fingers, where they are least disturbed ; here they penetrate into the skin ; their feeding, or biting, produces the itching—whence the name of the complaint.

This disorder may be communicated by means of linen : and is frequently
caught

caught by lying between sheets that are infected ; but never by means of woollen —Therefore a person runs no risque of catching the complaint in bed, if he lies betwixt the blankets, and has on a woollen shirt, without any linen about him.

I have known it several times conveyed five hundred miles in linen ; which has afterwards lain many months, and infected those who had the handling it.

In like manner the plague is sometimes conveyed in bales of goods, from a distant country.

The

The progress of the itch may be prevented, by washing the parts with soap and water soon after it is caught : but it must be done before it has penetrated too deep into the skin. This will wash off, and prevent the progress on the surface of every infection in nature, if done presently.

These animalcules (which are the cause of the itch) preying upon the skin, produce pustules, scabs, &c. the parts that they destroy become putrid ; and laying innumerable quantities of eggs, which are hatched by the heat of the body,

increase

increase so as to spread all over a person, if neglected ; and in course of time will endanger life. But on their being destroyed by brimstone, mercury, or other acrimonious poisonous things, the itching ceases, the pustules disappear, and the skin becomes as smooth as ever.

The invention of glasses has opened an extensive field for philosophical observation on this head. They present to our view a new world of people——myriads and myriads of insects, so small, as could scarcely exist in our ideas without their use.

All

All nature teems with life—The microscope discovers to us animalcules so very minute, that a whole army of them would elude common inspection.

A close attention to these matters, in numberless cases, during many years, has proved beyond a doubt that the jail distemper, plague, putrid fevers, and a long train of ills the product of infectious epidemic disorders; proceed not from a matter putrid in itself, but from invisible insects, that, floating in the air at times, are lodged in the skin in innumerable quantities. From their feeding here in clusters

clusters they produce pimples, boils, &c. somewhat similar to the itch. It may be easily conceived, that insects can produce all this mischief, and many other terrible disorders, both external and internal, - even to the very destruction of life itself. The medicines which poison insects without injuring the constitution, have always proved specific remedies—which is the case with several mineral as well as vegetable substances, when properly prepared.

These insects are communicated from one to another by the medium of the air, raiment, goods, or contact.

Animalcules

Animalcules do more mischief than is generally imagined. Not only animals, but vegetables suffer extremely from their ravages; the smallest insects generally doing the most mischief, from the amazing superiority of their numbers, while they are the least suspected, from their minuteness.

The effluvia of marshes have often swept away thousands of people together; and carried devastation and misery thro' populous cities and camps. This, as well as the plague, has been ascribed to the effluvia of putrifying vegetables, of

dead reptiles and insects, during the autumnal heats—But this is not the case: for the air may be infected at every season of the year, and in almost every situation; even in the hardest frosts at the end of winter, when the portion of putrid effluvia from vegetables and insects must be very small indeed, and cannot have any bad effect.

Nor do I find that the putrefaction of bodies is the cause of these disorders—

If one that dies of an epidemic disorder, be soon opened or dissected, the effluvia will often have most terrible effects; and is

more

more infectious, and has commonly worse consequences than any effluvia from the living :—but those that die of such disorders seldom continue to be infectious long ; for the cause dies generally soon after the body, although the putrefaction continues. This noxious effluvia can be no kind of gas—on the contrary, every kind is destructive to it, and prevents the bad effects, by destroying the cause.

It plainly appears, that the roots and herbage of the fields and gardens afford a sustenance for innumerable quantities of insects. And it may frequently be

demonstrated to a curious observer, that the amazing (and otherwise unaccountable) ravages which are made on vegetables, are by insects scarcely visible.

But the greatest devastation and ruin are produced by those that are invisible to the naked eye; their numbers and increase being inconceivable. It has been observed, that the smaller the animals, the greater are the numbers generally produced by them.

By the help of glasses, I perceive that several disorders in corn are produced by

ani-

animalcules. I have seen many hundreds sacks of wheat-flour greatly injured, and some totally ruined, by a particular species : some so minute, that they are not visible, only as being in motion ; and their form is not discernible to the naked eye. By the use of the solar microscope, those that are full grown appear to be near the shape and size of a pig two or three months old ; and the younger ones less, in proportion to their age—and every part of such flour contains numbers.

If the whole body of such animalcule be so very minute as to be scarcely perceptible, how very small must be the eggs! also the vitals: as the stomach, heart, liver, brain, &c. ! And how much more minute must be the veins and arteries passing thro' those invisible parts! —Is it not wonderful, that all these parts are capable of the same functions as in larger animals!

These animalcules are as well proportioned in their limbs, and have the use as perfectly, as elephants, or the largest animals in nature; are endowed
with

with the same senses, ideas, and passions ;
 are equally as susceptible of pleasure and
 pain, of craving and enjoyment. They
 will start through fear, and run from
 any approaching danger—or care, what-
 ever is pleasing to them : the only dif-
 ference that can be perceived is, that their
 spheres of action are more limited than
 those of the largest animals.

And it is still more wonderful, that
 living beings are discovered so much
 more minute, that even a score of them
 would not equal the bulk of one of those
 described above.

By

By contemplating this subject, the mind is lost in astonishment. What chance, what accident could form, and so wonderfully animate, beings so exceedingly minute? or could preserve and continue their successive generations through all time from the creation.

The creative power of an Almighty Being is here evinced beyond the possibility of a doubt.—Such amazing, and very wonderful minutiae, when examined, are more striking than the stupendous parts of the creation.

These

These animalcules that are frequently found in the wheat-flour; have their origin in the soil where the corn grew.—

The eggs lie in the ground all winter; being hatched the ensuing summer, the

insects creep up the stalks; and sometimes impare both straw, and—corn,

when they get up to the ears. They sometimes destroy it; or otherwise, leave their eggs sticking in the grain, and then

die. These eggs are so very minute, that numbers escape destruction in the grinding of the flour,

By

By the help of glaffes, plenty of them are to be feen in the flour, during the following winter ; but (without it be kept in a warm place) no animalcules till summer—when the heat of the weather hatches the eggs ; and every feason they increafe amazingly.

It is not all kinds of land that produce them ; nor will the corn be affected in the fame land every feason.

It has been proved, that by fteeping the feed before it is fown, for twenty-four hours, in a lye of pot or wood afhes

boiled

boiled with arsenic *, the future crop will be preserved from smut and blights; the insects will not touch the seeds or roots thus impregnated—if they do, it poisons them; nor does it affect the corn, the quantity used being so small a portion.

Quick lime, laid upon the land in the right season, has the same effect: for,

* See YOUNG'S Annals of Agriculture, Numb. 48, page 409—Boil one pound of arsenic in half a hog-shead of a strong lixivium of wood ashes: when this is cold, steep the seed in it for twenty-four hours---and even smutty seed will produce very good crops.

while

while it remains *quick*, it is very corrosive and destructive.

By burning vegetables to the windward, the smোক will preserve the ears of corn from the blight—in the same manner as it does fruit in the spring: for just as the fruit is setting, the animalcules which are lodged in the bark, peel, branches, &c. of the trees, as well as those in the soil, are crawling from their eggs, and commit great devastation. They are young and tender at this time, and easily suffocated, and thereby the fruit preserved.

Their

Their numbers, as may be seen by glasses, are often wonderful—and many of these mischievous beings may be seen without.

Orchards and gardens ought to be sometimes limed, for the very purpose of destroying the insects in the ground.—

Soot is very good for this purpose. I have seen numbers of fruit-trees preserved from the smother-fly, by laying soot in a trench round the roots.

The sheep in some parts of England, are at seasons subject to a disorder called

the

the foot-halt. This disorder lies in the feet, betwixt the claws : it is infectious, being communicated—to sheep, walking in the same tract. Some pastures are free from it, while others produce it:

This disorder is not produced by any corrosive acrid matter ; for the most corrosive acrid things in nature are remedies.

A farmer some years ago complained, that he had many sheep lame of this disorder. I concluded that it was produced by animalcules ; and advised him to try
 expe-

experiments on one or two, by washing the parts with water made very sour with oil of vitriol. But he being confident that the real cause was pointed out, did not wait the result of such experiments, but applied the liquid to the feet of upward of three hundred in one morning. This one application cured them all, without any further trouble—and running about in the dew of the pasture, prevented any bad consequence from the vitriol.

The scab, and many external disorders in cattle, are cured in the same manner.

But

But this is a remedy that can only be used externally—and must not be trusted to the unwary; but used with particular caution. After it has done its business, it must be washed off—well diluted with water, or saturated with an alkali; else the remedy may prove worse than the disease.—It need not be made stronger than that a man can with pleasure taste of.

Strong tobacco water, and other acrid things that will kill insects, will cure the scab, and other external disorders in cattle.

It

It is discovered, that laying quick lime in a pass that the sheep must frequently go through, will also cure the disorder in their feet—and laying it upon the land, will cure every pasture of this infection, and most others ; especially if laid on in spring-time : at which season the animalcules are easily destroyed, being just hatched and crawling from their eggs, consequently are very weak and tender.

Few sorts of insects live more than a summer : their lives terminate with the warm weather. But those bred in ani-

D

mals

mals being in a hot climate, many generations may be produced in a short time. It is supposed, that a hard winter lessens the number of insects the ensuing spring—but this is a mistake: their eggs are not hurt by the coldest season in winter; whether they are lodged in the ground, or more exposed in the bark, boles, or branches of trees, shrubs, &c. Eggs of the most tender kind, that were inclosed in solid ice for weeks, have produced as fine healthy insects as any, the following spring. The truth is, a frosty spring, when the young tender brood are

coming

coming forth, is destructive to them, as well as to the fruits and herbage. It is found, that long frosts prevent the lands from spending in winter—whence vegetation is the better supported the ensuing summer. Towards the north and south, where winter lasts near two-thirds of the year, this observation is verified; for as the summer approaches, the growth of plants, &c. is amazingly quick: the soil is so well recruited in that length of time, that when the hot weather comes in, the quickness of increase is incredible in this country—where vegetation is so much flower.

It is with vegetables, as with animals : many of their disorders cannot be cured without the use of such things as will poison, destroy, or disperse animalcules. The medicines must be adapted to constitutions—antidotes, and preservatives from infection, must be of the same nature.

Should any one doubt the truth of this maxim, let him attend to experiments ; let him rely on facts ; and he will soon be convinced by the happy effects.—He will find that epidemic fevers are cured by destroying animalcules ; for great numbers

numbers of people, who were in a very dangerous way, have been easily recovered on this principle, from putrid fevers, and other disorders—and that in one, two, or three days, with only a few doses of medicine.

Minerals, as well as some vegetables, properly prepared, being given internally, their particles circulate with the blood through the minutest vessels to the very extremities, and impregnate every part—these animalcules taking it in with their food, are poisoned thereby.

It is necessary to vary these medicines, according to the nature of the constitution; for though there are many preparations that are excellent for this purpose, yet it is not to be supposed there is any one medicine in being, that is a specific remedy for these disorders in every constitution—therefore the skill of a physician is frequently necessary; who, when he knows the cause of these disorders, will remove it quickly—the effect will cease—and nature may be then very soon restored.

It

It is probable, that the virtues of Dr. James's powders in curing fevers, consist in the power the minerals it contains have of destroying animalcules.

Hence it may readily be conceived how mercury, being so acrid and corrosive, (qualities so very different to those of a healing nature) should be the means of curing ulcers.——

It poisons or destroys the cause, and nature heals up the wounds.

Doubtless other medicines may be invented to produce the same effect.

It

It is more than probable, that the chief reason the ancient Britons had for painting their bodies, was to preserve them from the ravages of grubs, and various animalcules, when they lay naked on the ground.

In regard to the method of treating fevers, physicians frequently run into one extreme or other. Some increase the disorder, by keeping the patients hot, and giving them heating medicines: while others, on the contrary, reduce them by bleeding, physicing, &c. to the brink of the grave—the powers of nature

nature are exhausted : they save them from a violent death, and leave them in a situation to which death is preferable : the original disorder is still left preying upon them : and they undergo all the horrors of a low fever, which generally in these cases acquires the title of nervous, and sometimes end in suicide. It will be found, that the greatest part of the suicides in this country are produced by this disorder.

But when the cause of fevers is understood, and medicines used that will de-

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stroy

destroy the cause, at the same time proper attention be paid to the particular constitution of each patient, cures are performed without running into either extreme, or hurting the constitution in the least.

The sudden change for the better that happens to a person—when his fever is wrought up to a crisis, I suppose to be produced by the heat of the body ; which is arrived to such an extraordinary degree of heat and putrescency, as to destroy the malignant cause, whatever it is.

If

If the mischief arises from insects—it is easy to conceive how a small increase of heat may more expeditiously hatch their eggs, suddenly increase their numbers, and consequently heighten the disorder. —Likewise that a violent increase of heat may bring on their destruction, and effect a cure.

After the crisis, people have found such immediate relief from drinking of cold water, that the cure of fevers has by some been attributed to the water alone—not considering that the cause of the malady was first removed.

England

England is scarce ever intirely free from epidemic disorders—they continually reign in one part or other—and whenever the subject is well understood, it will be found that more than four-fifths of the disorders which the inhabitants are afflicted with, proceed from them.

Many disorders that affect the head, the lungs, the stomach, the bowels, the liver, and other parts, internal and external, are to be attributed to the same cause:

I have

I have an account in writing of many extraordinary complaints cured on the same principle ; which fully corroborates the doctrine—with a description of the medicines, and mode of administering them.

Ulcerated lungs have been cured, by taking a medicine twice in the course of three days : and some hundreds have since been freed from the flux, and many other disorders, in less time.

If the dropfy, and some species of the gout, were found to originate in the
same

same cause, I should not wonder—when this disorder gets into the brain, insanity is often the consequence.

The sheep that feed on low marshy lands in England, are some wet years exceedingly troubled with a disorder called the Rot—from the liver being decayed. When sheep are killed that have this distemper, the butcher finds abundance of insects in their livers, which they call flewks (from their resembling flat fish of that name), with a great part of their livers destroyed by them. And
when

when a sheep dies of this disease, the whole of the liver is often eat up.

The removing of sheep into dry hilly countries, will generally restore them: and laying quick lime upon the ground will cure the pastures that are infected, it proving destructive to the flewks.

From numerous observations, during the course of some years, I have been convinced, that the mischievous matter which produces the plague, and other epidemic disorders—is effluviated from the earth.

It

It is recorded, that at the time of the earthquake at Lisbon 1531, which continued seven or eight days, as many times each day a warm contagious vapour arose out of the chasms where the ground had opened, and produced the plague.—Epidemic fevers are consequent to earthquakes in the West Indies: and earthquakes have frequently been observed to precede the plague in Europe.

The plague immediately followed an extraordinary eruption of Mount Vesuvius in 1690—a noxious vapour arose

at

at that time, which produced it to a very great degree.

In the year 1769, when epidemic disorders apparently were almost universal in England, the winter was remarkable for warm open weather, and for those meteors called Aurora Borealis: and whenever those disorders have predominated, they have always been preceded by those appearances.

An extraordinary warmth in the bowels of the earth causes an amazing increase of animalcules, and they are

E

efflu-

effluviated with that electric vapour, the warmth of which has given them birth —when this electric vapour accumulates in the earth, to such a degree as to take fire there, it produces earthquakes : and when it takes fire in the air, it causes lightning and various other phenomena ; according as it is situated, or according to the quantity. If the air be wet, it is productive of lightning and thunder also.

The aurora borealis is produced by its taking fire in a more dispersed state, which appears when the atmosphere is

clear,

clear, in corruscations, or small flashes of lightning—they are visible to an accurate observer, even in the day time, almost always when the weather is warm and the air clear.

When this electric vapour forms large and long-continued trains in the higher regions, it produces those meteors that appear like balls of fire. If this train takes fire at one end, it passes swiftly along it to the other—if in the middle, the appearance is of two balls, flying in opposite directions : and so on.

These meteors are so quick, that they have been observed to fly 1200 miles in a minute.

The heat of the weather depends greatly on the quantity of electric vapour which arises from the earth, and floats in the atmosphere.

Whatever the atmosphere contains, is the effluvia of the earth. The matter that produces the aurora, arises from under our feet, and from the earth round about us; and is not at that immense distance as some imagine.

Though

Though we first perceive them to the north-east of us (the reason of which appearance shall be explained hereafter), yet they sometimes appear all around us, in every part of the atmosphere, and form an arch of corruscations, the center of which is to the south-east of the zenith,

They may then as properly be called eastern lights, or southern lights, as northern.

Mr. Boyle says, that contagious epidemic disorders arise from subterraneous

causes—and makes the wholesomeness of the air depend on the impregnation it receives from subterraneous effluvia: a cause (he observes) greatly overlooked by physicians.

This great man likewise remarks, that the overflowing of the Nile gives a speedy stop to the contagion, and a check to the plague, at Grand Cairo; notwithstanding the weather prove excessive hot at the same time.

Hence we may conclude, that the animalcules which are engendered about
the

the stagnant waters, near the banks of the Nile, are washed away by the floods.

It is worthy our remark, that great inundations and heavy rains in this country, put a stop to epidemic disorders—when they will not be checked by the smartest frosts, or any other kinds of weather. In March 1770, we had a very severe frost, which lasted several days, yet these disorders did not in the least abate.

Heavy rains tend greatly to cleanse the air; the falling drops bear down the malignant

malignant matter, and carry it away
 ——one great use of rain, which is but
 little thought of.

The disorder of 1769 and 1770, continued till November 1770, when there were constant rains for ten days, and the largest flood within the memory of man—immediately after which, the distemper ceased.—The rain is herein one of nature's grand specific remedies.

It is probable that London being more healthy than most places in England where people live so close, is on account
 of

of the very heavy, and more frequent, showers that fall there.

When the air is the most infected, it is not so universally : the disorder is only local : and the more a person goes abroad, the more likely he is to catch it, by passing through some infected air ; especially if his concerns lead him into a number of the poorer sort of houses— for these being generally low and close, the infection once got in does not readily remove without means be used. What appears extraordinary is, that the people who dwell in those places, are frequently

less

less liable to be infected than a visitor.

It is very common for a fresh person to carry away with him the seeds of a putrid fever, from a house where he has staid but a few minutes, while the inhabitants have been intirely free from the least disorder. Many such instances may be produced.

In like manner have numbers of people in a court of judicature caught the jail distemper from the prisoners, on their trial, while the latter have remained in health.

It

It will be readily allowed, that the prisoners bring the cause with them in their clothes, whence it effluviates into the air, and infects the byestanders. It may be presumed, that the skins of the prisoners, for want of washing and clean linen, are become filthy enough to prove antidotes to the disorder—that the animalcules avoid preying upon such nauseous bodies, as though they had been fumigated with brimstone, or washed with vinegar or other acrid matter.

Those that visit prisons, should use preservatives against the contagion.

The

The prisoners of Newgate have sometimes been washed all over in a bath, and then dressed in fresh clean clothes, before they went into court at the Old Bailey to take their trials.

This is proper, and sometimes very necessary ; and ought to be observed in all the jails throughout England, and elsewhere——the best means should be used to prevent or drive out the contagion from the prisons.

The way to clear infection, is by fumigation and washing. Every room, passage, corner and crevice in a house, stable,

stable, yard, &c. should be washed with vinegar ; where that is wanting, soap-suds may be used ; and fumigated with some acrid penetrating vapour, beginning with the lowest rooms. The fumes of burning brimstone will do the business effectually : but as the smell may be deemed nauseous, and hurtful to furniture—frankincense is to be preferred ; being both innocent, pleasant, and effectual.

Many houses that were infectious for a long time, and some part or other of the family continually disordered—on
fumi-

fumigating them only once with frankincense, have been intirely freed from contagion, without any other means being used. Flame and smoke will drive away or destroy the cause of infections: but circumstances frequently prevent their being applied.—The fumes of tobacco are excellent.

Some busineses prevent infections: wherever any acrid effluvia arises, and floats in the air about a house, it drives away the disorder—it will not come near a tobacconist's or snuff shop.

At

At the time of the great plague in England, many persons were preserved by taking up their residence near tanners yards—those who got within the smell of the vats remained healthy.

It is highly necessary, for the preservation of health, previous to a person's going into infected places, that he chew bay leaves—wormwood—tobacco—or any other sharp acrid bitter—wash his face and hands with soap and water—his mouth with vinegar—take snuff—smell the effluvia of volatile salts—drink brandy—smoke tobacco before and after.

The

The frequent use of the latter is very proper when the air is infected.

As the foregoing methods for preventing the progress of contagious disorders, are chiefly applicable to the use of families and individuals, I shall add a more extensive plan—whereby large tracts may be rescued from contagion.

Having already observed, that infectious disorders are caused by myriads of animalcules that infest the air at those times: the remedy, of course, must be by either dispersing or destroying them.

The

The methods hereafter pointed out are simple, plain, commonly easy ; and will be found effectual, on a proper application.

These mischievous beings originate in general, only from two sources. The greatest and most universal is subterranean. The pest effluviates from the bowels of the earth ; and sometimes to such a very great extent, that the inhabitants of countries far distant from each other, have been infected at the same instant. This may arise in all sorts of

F

weather,

weather, at any season of the year ; but chiefly with that warm electric vapour which produces the aurora borealis.

It is out of the power of mortals to prevent this noxious effluvia : it arises from depths beyond their reach, and is too extensive for their abilities. But although this cannot be prevented, yet the air may in a great measure be rendered pure after it is infected, by the same means that will clear it when infected from the other source, which is local or partial—Here the cause arises only from the surface of the earth, from
 swampy

swampy grounds, large filthy lakes, ponds, and other stagnant water.

Whenever a town or city in England is more particularly troubled with infectious disorders, there will be found on examination much stagnant water in the neighbourhood, either in ponds, ditches, or the remains of floods in a flat country.

The effluvia that arises from the stagnant water on the banks of the Nile, in hot weather, produces the plague at Grand Cairo and its neighbourhood:

but the overflowing of that river, immediately stops the contagion, and the disorder decreases, notwithstanding the weather continues to be excessive hot at the time. It is therefore evident, that the cause is washed away by the floods, as far as they reach ; and then the contamination of the air lessens daily.

The eggs of those animalcules may be left in the soil, or sticking to the herbage that grows near the banks—and the next season, as the hot weather approaches, they come to life, and multitudes efflu-

viat

viate into the air. The same effect may be annually produced.

In like manner, those animalcules that prey upon the liver in sheep, owe their mischievous tendency to the moisture of the lands: for the sheep grazing in low wet lands in rainy seasons, in England, will be much afflicted, while those in the hilly dry parts will be quite healthy.

In dry seasons, these same low lands will continue healthy for years, and produce no such disorder: wet seasons introduce it: whence it appears, that the eggs of those animalcules that are pro-

duced in the earth, are laid upon the
 grafs, which in dry seasons would have
 been deposited deeper in the dry foil—
 the fheep fwallow them with the her-
 bage, and they hatch and breed in the
 liver. Sheep that are bred in the falt
 marfhcs, are not troubled with this dif-
 order.

Sundry animals have bred even in the
 human fpecies: for although a living
 animal dies prefently on being fwallow-
 ed; yet the eggs or fpawn of animals,
 drank in water, have hatched in the
 ftomach, engendered and increafed amaz-
 ingly

ingly—for in this case, the stomach was their native and proper element : altho' it was present death to those produced in the natural way.

To prevent the mischiefs arising from wet lands, reason points out one general remedy, viz. that of DRAINING.

——By which means the cause would mostly be done away ; and the towns situate near flat countries become as healthy as any.

Whenever the air is become infected, either from the surface, or from the internal

ternal parts of the earth, the remedies
 are the same. To preserve a city in the
 time of infection—make fires all around
 it, particularly to the windward: fill the
 air with smoke by burning vegetables;
 those that send forth the most acrid
 fumes are best, but the refuse of the
 country will do. Serve the streets and
 habitations the same—with this difference,
 that those things must be used in houses,
 which will neither blacken nor hurt the
 colours of furniture, &c. Frankincense
 (as before recommended) is the best,
 being efficacious and harmless. To-
 bacco,

baeco, dried wormwood, rue, or any kind of spirits, burnt on a pan of coals; or even plenty of brown paper, will do very well.

Burning of brimstone is quite effect-
ual: but is only to be used where there
is no danger of suffocation, or of injur-
ing furniture. This vapour is destruc-
tive to most colours; rusts metals; and
leaves a disagreeable scent, which is a
long while going off.

The air in streets may be cleared by
water thrown up by engines, or sprin-
kled

kled from the tops of houses ; producing the same effect as rain—therefore the necessity of supplying towns with plenty of good water is obvious. The above process should be often repeated at those seasons, while the noxious matter is frequently or continually rising.

Water is so efficacious in this business, that if a piece of meat recently infected with the plague, be passed through it, it becomes no longer pernicious.

High winds are sometimes useful in dispersing infectious matter : wherefore
wide

wide open streets are to be preferred in every city—for confined places, when once the air is contaminated, will remain noxious after the atmosphere is in general become pure.

By a proper attention to, and application of those measures, all habitations, towns and cities, in different parts of the world, even Constantinople itself, and all other places in Turkey, might not only be cleared, but preserved from the plague, **AND ALL EPIDEMIC CONTAGIOUS DISEASES.**

Shortly

Shortly will be published, an account of numberless cures in very dangerous cases, performed on the foregoing principles; which will prove the truth of the doctrine beyond a possibility of doubt—

Also, the method of treatment: with a description of the necessary medicines: whereby persons of a common degree of understanding will be enabled, in most cases, to undertake the cure of contagious disorders—as well putrid epidemic fevers, as the small-pox, whooping-cough, consumptions, &c.—Likewise those disorders, called Nervous, that

prey

prey incessantly on the spirits, and are often the cause of insanity and suicide—for these generally proceed from the same origin. Great numbers of instances will be produced, wherein many who have laboured under disorders that they could not describe, and which have baffled the skill of the ablest men, after being afflicted for years with the most horrid, unaccountable, and dreadful apprehensions—have been cured in a few hours on the preceding maxims: and this cause ought mostly to be suspected in disorders that cannot be accounted for.

In

In all complicated cases, and delicate constitutions, where physicians must be called in—to them it is sufficient to know the cause, and the remedies follow of course.

If the medical gentlemen will proceed upon the principles of this doctrine, they will soon be convinced, by experience, that ignorance in the cause of fevers and the methods of cure, will no longer be the opprobrium medicorum—and through their means this essay may become of general utility—by diffusing longevity, and the blessings of health, to mankind :

mankind : particularly to the inhabitants of this island, the greatest part of whose ailments have their origin in an infected atmosphere : and where it will be found on a nice investigation (though at present little suspected), that the largest number of the people have their days shortened by epidemic disorders.

T H E E N D.

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